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CROWN LANDS HARVESTING SYSTEM SURVEY 1988-89

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TIMBER MANAGEMENT BRANCH

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CROWN LANDS HARVESTING SYSTEM SURVEY 1988-89

Department of Natural Resources and Energy

New Brunswick

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ABSTRACT

The Crown Lands Harvesting System Survey was initiated during 1980 by the Department of Natural Resources and Energy (DNRE) as a means of gaining background information about harvesting on which guidelines and policy pertaining to harvesting and utilization could be based.

The 1988-89 Survey gives an indication of the harvesting systems and machine types used and volumes of wood harvested by these systems for the Licensees and Sub-licensees entitled to operate on Crown Lands.

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INTRODUCTION

The Crown Lands Harvesting System Survey was initiated during 1980 and became a yearly publication by the Department of Natural Resources and Energy (DNRE) until the 1985 operating year. It was felt that harvesting trends didn't change significantly on a yearly basis, therefore the survey was scheduled to be done every three years, hence, the 1986-87 survey was compiled. Since then it was felt every second year was sufficient to foresee any significant trends. The 1988-89 Harvesting System Survey gives an indication of the harvesting systems and machine types used with approximate volumes of wood harvested by these systems for the Licensees and Sub-licensees entitled to operate on Crown Lands.

The 1988-89 Survey was conducted on individual Crown Licenses and is based on the harvesting system and volume of wood harvested on an individual block basis as reported in the Licensees' 1988-89 Annual Report.

Information in this report is of a general nature and results given for an individual Licensee may vary slightly from the actual because of differences in the interpretation of the information reported in the Annual Reports. This report gives no indication of harvesting patterns and trends on industrial and non-industrial freehold land, but gives a realistic indication of how wood is being harvested on Crown Lands.

PURPOSE

The purpose of Crown Lands Harvesting System Survey is:

(1) To supply resource managers with information on which decisions concerning guidelines and policy pertaining to harvesting and utilization can be based.

(2) To identify any trends or changes in the way wood is harvested from Provincial Crown Lands.

(3) To familiarize DNRE staff with the various harvesting systems and machine types being used to harvest wood from Crown Lands.

PROCEDURE

The Crown Lands Harvesting System Survey was carried out by the following procedure:

(1) The actual harvesting system and volume of wood harvested were summarized by each individual cut block as reported in the Licensee's "Description of Proposed and Actual Harvesting Operations" section in the 1988-89 Licensee Annual Reports.

(2) Each phase of a harvesting system; felling, delimbing, forwarding and slashing were summarized by volume for each License by Licensee and Sub-Licensee.

(3) Harvesting systems and machine types used by the Licensees and the Sub-licensees were listed by License.

(4) Approximate volumes of wood harvested by each phase of a harvesting system were tabulated for each individual License (separated by Licensee and Sub-licensee).

(5) The total volume of wood harvested by each phase of a harvesting system for all Provincial Crown Land was calculated by summing the individual Licensees.

(6) The approximate volumes of wood harvested by each phase of a harvesting system for all Crown land were tabulated for the 1981-82, 1982-83, 1983-84, 1986-87, 1988-89 operating seasons.

(7) The percentage of softwood and hardwood harvested on all Provincial Crown Land were displayed in bar charts by each phase of a harvesting system.

RESULTS

HARVESTING SYSTEMS AND MACHINE TYPES

The harvesting systems and percentages of wood harvested by each system employed by various Licensees and Sub-licensees operating on Crown Lands are listed by License on the following pages. Included on each license is a list of machine types used (excluding cable skidders and forwarders).

UPSALQUITCH LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (NBIP FOREST PRODUCTS INC.)		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	25	72
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	1	1
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	28	22
- Mechanical Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	46	5
SUB-LICENSEE		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Adrien Arsenault Limited	100	100
Atlantic Waferboard Inc.	100	100
Lattes Balmoral Ltée	100	93
Oscar Belanger Lumber Co. Ltd.	100	100
*Burchill Plywood (1984) Ltd.	100	100
Kedgwick Lumber Co. Ltd.	100	100
J.S. Murray & Sons Ltd.	100	100
Cedre Restigouche Ltée	-	100
Industriés St. Quentin Ltée	100	100
North American Forest Products Ltd.	100	100
Les Scies de Balmoral Ltée	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Oscar Belanger Lumber Co. Ltd.	0	-
J.S. Murray & Sons Ltd.	100	-
Lattes Balmoral Ltée	-	7
Stone-Consolidated Inc.	-	100

NOTE:

- \- indicates that no volume was harvested by a particular system.
- 0 indicates that less than 0.5% of the volume was harvested by a particular system.
- * Sub-Licensee on the Nepisiguit License.

UPSALQUITCH LICENSE
(Cont'd)

EQUIPMENT

LICENSEE

12 - Harvesters - 12 Koehring Shortwood Harvesters.

LICENSEE (CONTRACTOR)

3 - Delimbers - 1 John Deere
- 1 Case
- 1 Prentice

12 - Slashers - 12 Hoods

SUB-LICENSEE

2 - Delimbers - 1 Hood (Oscar Belanger Lumber)
- 1 Case (North American Forest Products)

4 - Slashers - 2 Tanguays (Oscar Belanger Lumber)
- 2 Hoods (North American Forest Products)

NEPISIGUIT LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME SW	HW
LICENSEE (STONE-CONSOLIDATED INC.)		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	17	26
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	69	67
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	14	7
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Moulin Duclos Ltée	78	72
Walter Hadley	100	100
Herbert M. Knowles Enterprises Ltd.	41	75
Moulin McGraw Sawmills Ltd.	100	100
Sheila Lumber (1989) Ltée	100	100
Moulin H. Thomas Ltée	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Chaleur Pulpwood Ltd.	0	-
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Burchill Plywood (1984) Ltd.	100	-
Chaleur Pulpwood Ltd.	100	100
Moulin Duclos Ltée	22	28
North American Forest Products	28	6
Cedre Restigouche Ltée	100	100
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
North American Forest Products	72	94
Scierie de Nigadoo Ltée	100	100
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Herbert M. Knowles Enterprises Ltd.	59	25

NEPISIGUIT LICENSE
(Cont'd)

EQUIPMENT

LICENSEE

4 - Slashers - 1 Tanguay CC100
- 3 Hood

LICENSEE (CONTRACTOR)

4 - Slashers - 2 Tanguay CC100
- 2 Hood

SUB-LICENSEE

2 - Feller Bunchers - 1 Timco with Tennco A 206 Circular Saw (North American Forest Products)
- 1 John Deere with Roto Saw (Herbert Knowles)

2 - Grapple Skidders - 1 (North American Forest Products)
- 1 (Herbert Knowles)

3 - Delimbers - 2 Case chassis with Denis Delimber Heads (North American Forest Products)
- 1 Case chassis with Denis Delimber Head (Herbert Knowles)

6 - Slashers - 5 Hoods - 2 (North American Forest Products)
1 (Herbert Knowles)
1 (Chaleur Pulpwood)
1 (Moulin Duclos)
- 1 Tanguay CC100 (Chaleur Pulpwood)

LOWER MIRAMICHI LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (MIRAMICHI PULP & PAPER INC.)		
- Manual Fell/Delimb/Slash at the stump; Skid Short Wood to roadside.	26	34
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	12	15
- Manual Fell/Delimb at the stump; Forward Tree Length by Horse; Mechanical Slash at roadside.	0	0
- Manual Fell; Skid Full Tree; Manual Delimb and Mechanical Slash at roadside.	2	0
- Manual Fell; Mechanical Delimb/Slash into Log Length at the Stump; Forward Short Wood (Log Length); Mechanical Slash into pulp-wood at roadside.	1	0
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	48	44
- Mechanical Fell; Skid Full Tree; Manual Delimb and Mechanical Slash at roadside.	3	1
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	8	6
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Atlantic Waferboard Inc.	100	86
*Gary Betts	100	100
K & R Dickson Lumber	100	-
Gilks Lumber (1968) Ltd.	100	100
D. Matchett	100	100
Gerald A. Roy Ltd.	100	100
Sheila Lumber (1989) Ltée	100	100
St. Anthony Lathing Mills Ltd.	100	100
Underhill Forest Products ltd.	100	100

* Not a Sub-licensee, but reported as one in the Annual Report.

LOWER MIRAMICHI LICENSE
(Cont'd)

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
SUB-LICENSEE (Cont'd)		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Atlantic Waferboard Inc.	0	14
*Richard Donovan	100	100
Russell & Swim Limited	17	1
Northern Timber Limited	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length by Horse; Manual Slash at roadside.		
Russell & Swim Limited	67	97
- Manual Fell/Delimb at the stump; Skid Tree Length by Horse; Mechanical Slash at roadside.		
Russell & Swim Limited	16	2

EQUIPMENT

LICENSEE (CONTRACTOR)

3 - Feller Bunchers	- 1 Lowen Head on Tacenuchi Chassis - 2 Koehring 618 - Koehring chassis
2 - Processors	- 1 Lako Head on Case chassis - 1 Nokka Processor on universal tractor chassis
3 - Grapple Skiddes	- 2 Timberjack - 1 John Deere
6 - Delimbers	- 3 Denis Heads on Komatsu chassis - 1 Denis Head on Cat 215 chassis - 2 Hoods
5 - Slashers	- 1 Tanguay CC100 - 1 Tanguay CC125 - 3 Hoods

* Not a Sub-licensee; but reported as one in the Annual Report.

UPPER MIRAMICHI LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (MIRAMICHI PULP & PAPER INC.)		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	26	18
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	1	-
- Manual Fell;Mechanical Delimb/Slash at the stump; Forward Short Wood to roadside.	11	10
- Mechanical Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	5	4
- Mechanical Fell; Forward Full Tree; Mechanical Delimb/Slash at roadside.	57	68
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Atlantic Waferboard Inc.	100	100
Gilks Lumber (1986) Ltd.	57	-
Miramichi Lumber Inc.	2	-
Newcastle Lumber Co. Ltd.	24	98
Underhill Forest Products Ltd.	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Miramichi Lumber Inc.	38	-
James Sparks & Sons Ltd.	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Gilks Lumber (1986) Ltd.	43	-
Newcastle Lumber Co. Ltd.	68	2
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Miramichi Lumber Inc.	60	100
Newcastle Lumber Co. Lt.d	8	-

UPPER MIRAMICHI LICENSE
(Cont'd)

EQUIPMENT

LICENSEE

2 - Feller Forwarders - Koehrings

LICENSEE (CONTRACTORS)

2 - Feller Forwarders	- Koehrings
4 - Feller Bunchers	- 1 Case 1187B with Circular Saw - 1 Koehring 618 with Circular Saw - 2 Cat 219s with Roto Saws
5 - Processors	- 4 Rottnes - 1 Styre on Komatsu chassis
4 - Grapple Skidders	- 2 Timber Jack 450's - 2 Franklins
6 - Delimbers	- 2 Cases with Denis Heads - 1 John Deere with Denis Head - 1 J.C.B. with Rogers Head - 1 Drott with Denis Head - 1 Link Belt with Denis Head
5 - Slashers	- 5 Hoods

SUB-LICENSEE

2 - Feller Bunchers	- 1 John Deere 693 B with Circular Saw - 1 Koehring 618 with Circular Saw
3 - Grapple Skidders	- 2 John Deeres - 1 Timberjack 450
2 - Delimbers	- 2 Kamatsu 220's with Denis Heads
3 - Slashers	- 1 Huskey Brute - 2 Hoods

KENT LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (ATLANTIC WAFERBOARD INC.)		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	53	47
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	12	31
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	12	16
- Mechanical Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	17	4
- Mechanical Fell; Forward Full Tree; Mechanical Delimb/Slash at roadside.	6	2
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Delco Forest Products Ltd.	100	100
St. Ignace Sawmill Ltd.	100	-

EQUIPMENT

1 - Shortwood Processor - Case 1187 with Laco Processing Head

1 - Feller/Forwarder - 230 Timberjack Forwarder with Chainsaw felling attachment

1 - Delimber - Linkbelt 200 with Denis Head

1 - Slasher - Hood 2500

QUEENS-CHARLOTTE LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (J. D. IRVING LIMITED)		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	0	8
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	0	7
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	1	30
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	62	24
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	37	31
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Atlantic Waferboard Inc.	100	47
Bishop Lumber Co. Ltd.	11	9
Burchill Plywood (1984) Ltd.	67	-
Frobisher Industries	-	65
Gilks Lumber (1986) Ltd.	44	-
Russell & Swim Limited	0	-
St. Anthony Lathing Mills Ltd.	79	82
Veneer Products of N.B. (1981) Ltd.	-	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Atlantic Pressure Treating Limited	100	100
Russell & Swim Limited	99	98
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Atlantic Waferboard Inc.	-	53
Bishop Lumber Co. Ltd.	-	91
Frobisher Industries	-	35
Russell & Swim Limited	-	2
R. F. Sadler Ltd.	-	100

QUEENS-CHARLOTTE LICENSE
(Cont'd)

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
SUB-LICENSEE (Cont'd)		
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Bishop Lumber Co. ltd.	89	-
Brown's General Contracting Ltd.	100	-
Burchill Plywood (1984) Ltd.	33	-
Gilks Lumber (1986) Ltd.	56	-
Russell & Swim Limited	1	-
St. Anthony Lathing Mills Ltd.	22	18

EQUIPMENT

LICENSEE (CONTRACTOR)

8 - Feller Bunchers	- 1 Koehring 628 with Koehring Saw Head - 2 Koehring 618's with Koehring Saw Heads - 2 John Deere 693B's with Harricana Saw Heads - 1 Farano BT20 with Farano Shear Head - 1 Cat 217 with Harricana Saw Head - 1 Cat 227 with Harricana Saw Head
8 - Grapple Skidders	- 5 John Deere 740A's - 2 Cat 518's - 1 Timberjack 450
10 - Delimbers	- 2 John Deere 693B's with Harricana boom heads - 1 John Deere 693B with Denis boom head - 1 Drott 40 with Denis boom head - 1 Hitachi EX200LC with Denis boom head - 1 Case 125B with Denis boom head - 2 Link Belt LS800's with Denis boom heads - 2 Cat 215's with Denis boom heads
7 - Slashers	- 3 Hood 24 000's - 4 Tanguay CC100B's

SUB-LICENSEE

1 - Delimber	- 1 Link Belt LS800 with Denis boom head
1 - Slasher	- 1 Hood 24000

FUNDY LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (ROTHESAY PAPER LIMITED)		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	21	36
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	0	-
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	0	16
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	37	20
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	37	25
- Mechanical Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	4	3
- Mechanical Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.	1	0
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Alpha Industries Ltd.	100	100
Atlantic Waferboard Inc.	100	100
Bishop Lumber Co. Ltd.	-	100
T.P. Downey & Sons Ltd.	100	100
H.A. Fawcett Son Ltd.	31	52
Lakeburn Lumber Ltd.	100	100
Gerald M. Price Ltd.	100	100
Garald A. Roy Ltd.	100	-
*St. Paul Forest Products Ltd.	100	100
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Devon Lumber Co. Ltd.	-	18
Frobisher Industries	-	100
**Clarence Martin	-	100

* Sub-licensee on the Kent License.
** Not a Sub-licensee; but reported as one in the Annual Report.

FUNDY LICENSE
(Cont'd)

HARVESTING SYSTEM	% OF SCALE VOLUME SW	HW
SUB-LICENSEE (Cont'd)		
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Devon Lumber Co. Ltd.	82	53
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Dead River Ltd.	100	100
Devon Lumber Co. Ltd.	18	29
H. A. Fawcett Son Ltd.	69	48

EQUIPMENT

LICENSEE (CONTRACTOR)

2 - Harvesters	- 2 Poclain LC80's with Timmins Head
3 - Feller Bunchers	- 1 Cat 217 with Harricana Saw Head - 1 Cat 227 with Harricana Saw Head - 1 John Deere 693B with Harricana Saw Head
3 - Grapple Skidders	- 1 John Deere 740A - 1 Cat 518 - 1 Clarke 667
5 - Delimbers	- 2 Cat 215's with Denis boom head - 1 Cat 180 with Denis boom head - 1 JCB with Denis boom head - 1 Drott 40 with Denis boom head
9 - Slashers	- 6 Tanguay CC100B's - 3 Hood 24000's

SUB-LICENSEE

3 - Feller Bunchers	- 2 John Deere 693B's with Harricana Saw Heads - 1 Case 1187 with Harricana Saw Head
2 - Grapple Skidders	- 1 John Deere 640 - 1 John Deere 648
2 - Delimbers	- 1 Kamatsa with Denis boom head - 1 John Deere 693B with Denis boom head
2 - Slashers	- 2 Tanguay CC100B's

YORK LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (ST. ANNE NACKAWIC PULP & PAPER CO. LTD.)		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	4	6
- Manual Fell/Delimb at the stump; Skid Tree Length, Mechanical Slash at roadside.	96	94
SUB-LICENSEE		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Brownlane Lumber Ltd.	100	100
Hainesville Lumber	100	100

EQUIPMENT

LICENSEE (CONTRACTOR)

7 - Slashers - 2 Tanguay CC100's
- 2 Hoods
- 2 Tag-a-longs with Loader
- 1 Marcel

CARLETON LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (JUNIPER LUMBER CO. LTD.)		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	14	23
- Manual Fell; Mechanical Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	6	14
- Manual Fell; Mechanical Delimb at the stump; Skid Tree Length; Mechanical Slash at mill.	4	6
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	9	6
- Manual Fell; Skid Full Tree; Mechanical Delimb at roadside; Mechanical Slash at mill.	4	5
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.	11	21
- Mechanical Fell; Skid Full Tree; Mechancial Delimb at roadside; Mechanical Slash at mill.	52	25
SUB-LICENSEE		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
H. J. Crabbe & Sons Ltd.	100	100
Donald Hay & Sons Ltd.	100	100
R. F. Sadler ltd.	100	100
William Tompkins	100	100

EQUIPMENT

1 - Feller-Buncher - 618 Koehring

2 - Grapple Skidders - Timber Jacks

2 - Delimbers
- 1 John Deere 690C with Denis Delimbing Head
- 1 Drott with Denis Delimbing Head

2 - Slashers - Hoods

RESTIGOUCHE-TOBIQUE LICENSE

HARVESTING SYSTEM	% OF SCALE VOLUME	
	SW	HW
LICENSEE (FRASER INC.)		
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.	0	20
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.	0	1
- Manual Fell; Forward Full Tree; Manual Delimb/Slash at roadside.	-	26
- Manual Fell; Forward Full Tree; Mechanical Delimb/Slash at roadside.	24	12
- Manual Fell; Forward Full Tree; Mechanical Delimb at roadside; Mechanical Slash at mill.	61	37
- Mechanical Fell; Forward Full Tree; Mechanical Delimb/Slash at roadside.	1	-
- Mechanical Fell; Forward Full Tree; Mechanical Delimb at roadside; Mechanical Slash at mill.	14	4
SUB-LICENSEE		
- Manual Fell/Delimb/Slash at the stump; Forward Short Wood to roadside.		
Les Ateliers Arpin	100	100
Cedre Restigouche Ltée	11	24
- Manual Fell/Delimb at the stump; Skid Tree Length; Manual Slash at roadside.		
Gilles Begin Lumber Ltée	48	22
Raoul Couturier Lumber Ltd.	1	9
Lattes Waska Laths Inc.	100	100
Cedre Restigouche Ltée	0	8
R. F. Sadler Ltd.	100	100
Onil Thibeault	17	-
- Manual Fell/Delimb at the stump; Skid Tree Length; Mechanical Slash at roadside.		
Gilles Begin Lumber Ltée	50	24
Kedgwick Lumber Co. Ltd.	100	100
Cedre Restigouche Ltée	33	35
Onil Thibeault	83	-
Sarto A. Theriault Ltée	100	100

RESTIGOUCHE-TOBIQUE LICENSE
(Cont'd)

HARVESTING SYSTEM	% OF SCALE VOLUME SW	HW
SUB-LICENSEE (Cont'd)		
- Manual Fell; Forward Full Tree; Manual Delimb/Slash at roadside.		
Gilles Begin Lumber Ltée	-	8
Cedre Restigouche Ltée	-	33
- Manual Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Gilles Begin Lumber Ltée	2	46
Raoul Couturier Lumber ltd.	70	50
North American Forest Products ltd.	25	58
Cedre Restigouche Ltée	56	-
- Manual Fell; Skid Full Tree; Mechanical Delimb at roadside; Mechanical Slash at mill.		
North American Forest Products Ltd.	12	40
- Mechanical Fell; Skid Full Tree; Mechanical Delimb/Slash at roadside.		
Raoul Couturier Lumber Ltd.	29	41
North American Forest Products Ltd.	63	2

EQUIPMENT

LICENSEE

3 - Feller Forwarders	- 2 Koehrings with disc saws - 1 Koehring with shears
1 - Feller Buncher	- 1 Koehring 618 with disc saw
12 - Delimbers	- 3 John Deere 693's with Harricana boom heads - 2 John Deere 693D's with Denis boom heads - 2 Komatsu's with Denis boom heads - 1 Hitachi with Denis boom head - 1 Cat 215 with Denis boom head - 1 Cat 215 with Harricana boom head - 1 Cat 225 with Denis boom head - 1 Logma with Logma boom head
1 Grapple Skidder	- Clark 667

RESTIGOUCHE-TOBIQUE LICENSE
(Cont'd)

EQUIPMENT (Cont'd)

SUB-LICENSEE

4 - Feller Bunchers	- 2 John Deere 693D's with Harricana disc saws (Couturier Lumber) - 1 Case 1150 with Harricana disc saw (Couturier Lumber) - 1 Timber Jack Temco 2520 with Koehring disc saw (North American Forest Products)
6 - Delimbers	- 2 Cases with Denis boom heads (North American Forest Products) - 1 Koehring with Harricana boom head (Couturier Lumber) - 1 O + K with Denis boom head (Couturier Lumber) - 1 Case with Denis boom head (Couturier Lumber) - 1 Case with Denis boom head (Restigouche Cedar)
10 - Slashers	- 7 Hoods - 2 (North American Forest Products) - 2 (Restigouche Cedar) - 1 (Kedgwick Lumber) - 1 (Couturier Lumber) - 1 (Begin Lumber) - 3 Tanguay CC100's - 1 (North Amer. For. Prod.) - 2 (Couturier Lumber)

AMOUNTS OF WOOD HARVESTED

Approximate amounts and percentages of wood harvested by each system can be obtained by referring to the following tables.

Table 1. Harvesting Systems - Province by volume and percent

Table 2. Harvesting Systems - Licenses by volume and percent

Table 3. Harvesting Systems - Upsalquitch License by volume and percent

Table 4. Harvesting Systems - Nepisiguit License by volume and percent

Table 5. Harvesting Systems - Lower Miramichi License by volume and percent

Table 6. Harvesting Systems - Upper Miramichi License by volume and percent

Table 7. Harvesting Systems - Kent License by volume and percent

Table 8. Harvesting Systems - Queens-Charlotte License by volume and percent

Table 9. Harvesting Systems - Fundy License by volume and percent

Table 10. Harvesting Systems - York License by volume and percent

Table 11. Harvesting Systems - Carleton License by volume and percent

Table 12. Harvesting systems - Restigouche-Tobique License by volume and percent

Table 1. Harvesting Systems - Province by volume and percent.

FUNCTION	PROVINCE 1981-82				PROVINCE 1982-83				PROVINCE 1983-84			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	3 355 030	(83)	731 235	(95)	1 718 492	(91)	239 174	(96)	2 820 520	(91)	384 144	(96)
Mechanical Fell	686 125	(17)	34 850	(5)	159 848	(9)	9 676	(4)	265 859	(9)	17 054	(4)
Manual Delimb (bush)	2 837 710	(70)	700 865	(91)	1 301 396	(69)	197 861	(80)	2 167 960	(70)	349 009	(87)
Mech. Delimb (bush)	325 560	(8)	8 140	(1)	84 195	(5)	3 149	(1)	150 770	(5)	9 185	(2)
Mech. Delimb (road)	877 885	(22)	36 920	(5)	492 749	(26)	47 840	(19)	767 649	(25)	25 651	(7)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	1 338 600	(33)	243 200	(32)	527 988	(28)	46 760	(19)	1 009 268	(33)	76 414	(19)
Forward Tree Length	1 824 670	(45)	472 115	(62)	857 603	(46)	154 250	(62)	1 309 462	(42)	281 780	(70)
Forward Full Tree	877 885	(22)	50 770	(6)	492 749	(26)	47 840	(19)	767 649	(25)	43 004	(11)
Manual Slash (bush)	1 013 040	(25)	236 740	(31)	443 793	(24)	43 611	(17)	874 211	(28)	64 202	(16)
Manual Slash (road)	762 585	(19)	291 955	(38)	439 032	(23)	125 392	(51)	223 203	(7)	71 436	(18)
Mech. Slash (bush)	325 560	(8)	8 140	(1)	84 195	(5)	3 149	(1)	152 551	(5)	6 446	(2)
Mech. Slash (road)	1 241 125	(31)	162 180	(21)	675 854	(36)	56 849	(23)	1 492 987	(48)	189 020	(47)
Mech. Slash (mill)	698 845	(17)	0	(0)	235 466	(12)	19 849	(8)	343 427	(12)	52 671	(13)
Manual Slash (mill)	0	(0)	46 900	(6)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	20 160	(3)	0	(0)	0	(0)	0	(0)	17 353	(4)
TOTAL	4 041 155	(100)	766 085	(100)	1 878 340	(100)	248 850	(100)	3 086 379	(100)	401 198	(100)

Table 1 (Cont'd) - Harvesting Systems - Province by volume and percent.

FUNCTION	PROVINCE 1986-87				PROVINCE 1988-89							
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	2 899 684	(80)	587 996	(96)	3 144 966	(72)	731 553	(88)				
Mechanical Fell	735 691	(20)	22 970	(4)	1 246 030	(28)	97 248	(12)				
Manual Delimb (bush)	1 571 023	(43)	563 654	(92)	1 537 377	(35)	610 818	(74)				
Mech. Delimb (bush)	225 691	(6)	719	(0)	249 074	(6)	20 895	(2)				
Mech. Delimb (road)	1 838 255	(51)	9 613	(2)	2 585 063	(59)	180 405	(22)				
Manual Delimb (road)	406	(0)	30 225	(5)	19 482	(0)	16 683	(2)				
Forward Short Wood	958 747	(26)	97 556	(16)	824 885	(19)	194 798	(23)				
Forward Tree Length	837 967	(23)	466 817	(76)	961 566	(22)	436 915	(53)				
Forward Full Tree	1 838 661	(51)	46 593	(8)	2 604 545	(59)	197 088	(24)				
Manual Slash (bush)	733 765	(20)	97 176	(16)	604 885	(14)	187 438	(23)				
Manual Slash (road)	224 544	(6)	104 851	(17)	392 574	(9)	179 545	(21)				
Mech. Slash (bush)	225 691	(6)	719	(0)	220 000	(5)	7 360	(1)				
Mech. Slash (road)	1 944 426	(54)	385 715	(63)	2 683 117	(61)	428 252	(52)				
Mech. Slash (mill)	506 950	(14)	15 750	(3)	490 420	(11)	26 206	(3)				
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)				
Full Tree Chip	0	(0)	6 755	(1)	0	(0)	0	(0)				
TOTAL	3 635 376	(100)	610 966	(100)	4 390 996	(100)	828 801	(100)				

Table 2. Harvesting Systems - Licensee summaries by volume and percent.

FUNCTION	UPSALQUITCH				NEPISIGUIT				LOWER MIRAMICHI			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	241 384	(65)	82 770	(99)	410 034	(96)	94 083	(99)	383 273	(89)	73 006	(97)
Mechanical Fell	128 198	(35)	1 069	(1)	15 149	(4)	857	(1)	45 297	(11)	2 494	(3)
Manual Delimb (bush)	164 137	(44)	77 943	(93)	331 521	(78)	86 820	(91)	185 350	(43)	55 921	(74)
Mech. Delimb (bush)	128 198	(35)	1 069	(1)	0	(0)	0	(0)	3 996	(1)	47	(0)
Mech. Delimb (road)	77 247	(21)	4 827	(6)	93 662	(22)	8 120	(9)	219 742	(51)	19 062	(25)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	19 482	(5)	470	(1)
Forward Short Wood	128 198	(35)	1 069	(1)	92 203	(22)	25 716	(27)	129 630	(30)	42 008	(56)
Forward Tree Length	164 137	(44)	77 943	(93)	239 318	(56)	61 104	(64)	59 713	(14)	13 960	(18)
Forward Full Tree	77 247	(21)	4 827	(6)	93 662	(22)	8 120	(9)	239 224	(56)	19 532	(26)
Manual Slash (bush)	0	(0)	0	(0)	92 203	(22)	25 716	(27)	125 634	(29)	41 961	(56)
Manual Slash (road)	148 663	(40)	75 625	(90)	145	(0)	0	(0)	56 547	(13)	13 913	(18)
Mech. Slash (bush)	128 198	(35)	1 069	(1)	0	(0)	0	(0)	3 996	(1)	47	(0)
Mech. Slash (road)	92 721	(25)	7 145	(9)	332 835	(78)	69 224	(73)	242 390	(57)	19 579	(26)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	369 582	(100)	83 839	(100)	425 183	(100)	94 940	(100)	428 570	(100)	75 500	(100)

Table 2 (Cont'd). Harvesting Systems - Licensee summaries by Volume and percent.

FUNCTION	UPPER MIRAMICHI				KENT				QUEENS-CHARLOTTE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	268 149	(44)	42 913	(64)	56 281	(78)	48 254	(95)	516 379	(68)	77 394	(79)
Mechanical Fell	336 727	(56)	24 248	(36)	15 847	(22)	2 697	(5)	244 887	(32)	20 554	(21)
Manual Delimb (bush)	218 205	(36)	39 680	(59)	56 281	(78)	48 254	(95)	86 818	(11)	61 407	(63)
Mech. Delimb (bush)	74 730	(12)	4 382	(7)	11 623	(16)	1 823	(3)	0	(0)	0	(0)
Mech. Delimb (road)	311 941	(52)	23 099	(34)	4 224	(6)	874	(2)	674 448	(89)	36 541	(37)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	223 618	(37)	42 625	(64)	51 376	(71)	26 237	(51)	28 577	(4)	18 402	(19)
Forward Tree Length	69 317	(11)	1 437	(2)	16 528	(23)	23 840	(47)	58 241	(8)	43 005	(44)
Forward Full Tree	311 941	(52)	23 099	(34)	4 224	(6)	874	(2)	674 448	(88)	36 541	(37)
Manual Slash (bush)	148 888	(25)	38 243	(57)	39 753	(55)	24 414	(48)	28 577	(4)	18 402	(19)
Manual Slash (road)	37 595	(6)	1 432	(2)	8 134	(11)	15 493	(30)	53 892	(7)	6 552	(7)
Mech. Slash (bush)	74 730	(12)	4 382	(7)	11 623	(16)	1 823	(4)	0	(0)	0	(0)
Mech. Slash (road)	343 663	(57)	23 104	(34)	12 618	(18)	9 221	(18)	678 797	(89)	72 994	(74)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	604 876	(100)	67 161	(100)	72 128	(100)	50 951	(100)	761 266	(100)	97 948	(100)

Table 2 (Cont'd). Harvesting Systems - Licensee Summaries by volume and percent.

FUNCTION	FUNDY				YORK				CARLETON			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	311 546	(66)	57 275	(78)	227 533	(100)	125 284	(100)	101 155	(46)	35 370	(57)
Mechanical Fell	160 142	(34)	16 325	(22)	0	(0)	0	(0)	117 320	(54)	27 220	(43)
Manual Delimb (bush)	168 870	(36)	44 867	(61)	227 533	(100)	125 284	(100)	59 366	(27)	16 893	(27)
Mech. Delimb (bush)	12 478	(3)	1 538	(2)	0	(0)	0	(0)	18 049	(8)	12 036	(19)
Mech. Delimb (road)	290 340	(61)	27 195	(37)	0	(0)	0	(0)	141 060	(65)	33 661	(54)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	169 205	(36)	31 062	(42)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Tree Length	12 143	(3)	15 343	(21)	227 533	(100)	125 284	(100)	77 415	(35)	28 929	(46)
Forward Full Tree	290 340	(61)	27 195	(37)	0	(0)	0	(0)	141 060	(65)	33 661	(54)
Manual Slash (bush)	167 752	(36)	31 023	(42)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (road)	291	(0)	0	(0)	10 139	(4)	7 573	(6)	59 366	(27)	16 893	(27)
Mech. Slash (bush)	1 453	(0)	39	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	302 192	(64)	42 538	(58)	217 394	(96)	117 711	(94)	47 553	(22)	24 474	(39)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	111 556	(51)	21 223	(34)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	471 688	(100)	73 600	(100)	227 533	(100)	125 284	(100)	218 475	(100)	62 590	(100)

Table 2 (Cont'd). Harvesting Systems - Licensee Summaries by volume and percent.

FUNCTION	RESTIGOUCE-TOBIQUE									
	SW		HW		SW		HW		SW	HW
	m³	%	m³	%	m³	%	m³	%	m³ %	m³ %
Manual Fell	629 232	(78)	95 204	(98)						
Mechanical Fell	182 463	(22)	1 784	(2)						
Manual Delimb (bush)	39 296	(5)	53 749	(55)						
Mech. Delimb (bush)	0	(0)	0	(0)						
Mech. Delimb (road)	772 399	(95)	27 026	(28)						
Manual Delimb (road)	0	(0)	16 213	(17)						
Forward Short Wood	2 075	(0)	7 679	(8)						
Forward Tree Length	37 221	(5)	46 070	(47)						
Forward Full Tree	772 399	(95)	43 239	(45)						
Manual Slash (bush)	2 075	(0)	7 679	(8)						
Manual Slash (road)	17 802	(2)	42 064	(43)						
Mech. Slash (bush)	0	(0)	0	(0)						
Mech. Slash (road)	412 954	(51)	42 262	(44)						
Mech. Slash (mill)	378 864	(47)	4 983	(5)						
Manual Slash (mill)	0	(0)	0	(0)						
Full Tree Chip	0	(0)	0	(0)						
TOTAL	811 695	(100)	96 988	(100)						

Table 3. Harvesting Systems - Upsalquitch License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSEE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	148 097	(54)	20 647	(95)	93 287	(100)	62 123	(100)	241 384	(65)	82 770	(99)
Mechanical Fell	128 198	(46)	1 069	(5)	0	(0)	0	(0)	128 198	(35)	1 069	(1)
Manual Delimb (bush)	70 850	(26)	15 820	(73)	93 287	(100)	62 123	(100)	164 137	(44)	77 943	(93)
Mech. Delimb (bush)	128 198	(46)	1 069	(5)	0	(0)	0	(0)	128 198	(35)	1 069	(1)
Mech. Delimb (road)	77 247	(28)	4 827	(22)	0	(0)	0	(0)	77 247	(21)	4 826	(6)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	128 198	(46)	1 069	(5)	0	(0)	0	(0)	128 198	(35)	1 069	(1)
Forward Tree Length	70 850	(26)	15 820	(73)	93 287	(100)	62 123	(100)	164 137	(44)	77 943	(93)
Forward Full Tree	77 247	(28)	4 827	(22)	0	(0)	0	(0)	77 247	(21)	4 827	(6)
Manual Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (road)	68 648	(25)	15 706	(72)	80 015	(86)	59 919	(96)	148 663	(40)	75 625	(90)
Mech. Slash (bush)	128 198	(46)	1 069	(5)	0	(0)	0	(0)	128 198	(35)	1 069	(1)
Mech. Slash (road)	79 449	(29)	4 941	(23)	13 272	(14)	2 204	(4)	92 721	(25)	7 145	(9)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	276 295	(100)	21 716	(100)	93 287	(100)	62 123	(100)	369 582	(100)	83 839	(100)

Table 4. Harvesting Systems - Nepisiguit License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	247 997	(100)	70 040	(100)	162 037	(91)	24 043	(97)	410 034	(96)	94 083	(99)
Mechanical Fell	0	(0)	0	(0)	15 149	(9)	857	(3)	15 149	(4)	857	(1)
Manual Delimb (bush)	213 942	(86)	64 941	(93)	117 579	(66)	21 879	(88)	331 521	(78)	86 820	(91)
Mech. Delimb (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Delimb (road)	34 055	(14)	5 099	(7)	59 607	(34)	3 021	(12)	93 662	(22)	8 120	(9)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	43 264	(17)	18 423	(26)	48 939	(27)	7 293	(29)	92 203	(22)	25 716	(27)
Forward Tree Length	170 678	(69)	46 518	(67)	68 640	(39)	14 586	(59)	239 318	(56)	61 104	(64)
Forward Full Tree	34 055	(14)	5 099	(7)	59 607	(34)	3 021	(12)	93 662	(22)	8 120	(9)
Manual Slash (bush)	43 264	(17)	18 423	(26)	48 939	(28)	7 293	(29)	92 203	(22)	25 716	(27)
Manual Slash (road)	0	(0)	0	(0)	145	(0)	0	(0)	145	(0)	0	(0)
Mech. Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	204 733	(83)	51 617	(74)	128 102	(72)	17 607	(71)	332 835	(78)	69 224	(73)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	247 997	(100)	70 040	(100)	177 186	(100)	24 900	(100)	425 183	(100)	94 940	(100)

Table 5. Harvesting Systems - Lower Miramichi License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	348 575	(89)	35 976	(94)	34 698	(100)	37 030	(100)	383 273	(89)	73 006	(97)
Mechanical Fell	45 297	(11)	2 494	(6)	0	(0)	0	(0)	45 297	(11)	2 494	(3)
Manual Delimb (bush)	150 652	(38)	18 891	(49)	34 698	(100)	37 030	(100)	185 350	(43)	55 921	(74)
Mech. Delimb (bush)	3 996	(1)	47	(0)	0	(0)	0	(0)	3 996	(1)	47	(0)
Mech. Delimb (road)	219 742	(56)	19 062	(50)	0	(0)	0	(0)	219 742	(51)	19 062	(25)
Manual Delimb (road)	19 482	(5)	470	(1)	0	(0)	0	(0)	19 482	(5)	470	(1)
Forward Short Wood	107 489	(27)	13 025	(34)	22 141	(64)	28 983	(78)	129 630	(30)	42 008	(56)
Forward Tree Length	47 159	(12)	5 913	(15)	12 554	(36)	8 047	(22)	59 713	(14)	13 960	(18)
Forward Full Tree	239 224	(61)	19 532	(51)	0	(0)	0	(0)	239 224	(56)	19 532	(26)
Manual Slash (bush)	103 493	(26)	12 978	(34)	22 141	(64)	28 983	(78)	125 634	(29)	41 961	(56)
Manual Slash (road)	45 706	(12)	5 876	(15)	10 841	(31)	8 037	(22)	56 547	(13)	13 913	(18)
Mech. Slash (bush)	3 996	(1)	47	(0)	0	(0)	0	(0)	3 996	(1)	47	(0)
Mech. Slash (road)	240 677	(61)	19 569	(51)	1 713	(5)	10	(0)	242 390	(57)	19 579	(26)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	393 872	(100)	38 470	(100)	34 698	(100)	37 030	(100)	428 570	(100)	75 500	(100)

Table 6. Harvesting Systems - Upper Miramichi License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	169 575	(37)	9 193	(28)	98 574	(65)	33 720	(98)	268 149	(44)	42 913	(64)
Mechanical Fell	284 348	(63)	23 593	(72)	52 379	(35)	655	(2)	336 727	(56)	24 248	(36)
Manual Delimb (bush)	119 631	(26)	5 960	(18)	98 574	(65)	33 720	(98)	218 205	(36)	39 680	(59)
Mech. Delimb (bush)	74 730	(17)	4 382	(13)	0	(0)	0	(0)	74 730	(12)	4 382	(7)
Mech. Delimb (road)	259 562	(57)	22 444	(69)	52 379	(35)	655	(2)	311 941	(52)	23 099	(34)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	191 448	(42)	10 342	(32)	32 170	(21)	32 283	(94)	223 618	(37)	42 625	(64)
Forward Tree Length	2 913	(1)	0	(0)	66 404	(44)	1 437	(4)	69 317	(11)	1 437	(2)
Forward Full Tree	259 562	(57)	22 444	(68)	52 379	(35)	655	(2)	311 941	(52)	23 099	(34)
Manual Slash (bush)	116 718	(26)	5 960	(18)	32 170	(21)	32 283	(94)	148 888	(25)	38 243	(57)
Manual Slash (road)	2 913	(1)	0	(0)	34 682	(23)	1 432	(4)	37 595	(6)	1 432	(2)
Mech. Slash (bush)	74 730	(16)	4 382	(13)	0	(0)	0	(0)	74 730	(12)	4 382	(7)
Mech. Slash (road)	259 562	(57)	22 444	(69)	84 101	(56)	660	(2)	343 663	(57)	23 104	(34)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	453 923	(100)	32 786	(100)	150 953	(100)	34 375	(100)	604 876	(100)	67 161	(100)

Table 7. Harvesting Systems - Kent License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	52 255	(77)	47 876	(95)	4 026	(100)	378	(100)	56 281	(78)	48 254	(95)
Mechanical Fell	15 847	(23)	2 697	(5)	0	(0)	0	(0)	15 847	(22)	2 697	(5)
Manual Delimb (bush)	52 255	(77)	47 876	(95)	4 026	(100)	378	(100)	56 281	(78)	48 254	(95)
Mech. Delimb (bush)	11 623	(17)	1 823	(3)	0	(0)	0	(0)	11 623	(16)	1 823	(3)
Mech. Delimb (road)	4 224	(6)	874	(2)	0	(0)	0	(0)	4 224	(6)	874	(2)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	47 350	(70)	25 859	(51)	4 026	(100)	378	(100)	51 376	(71)	26 237	(51)
Forward Tree Length	16 528	(24)	23 840	(47)	0	(0)	0	(0)	16 528	(23)	23 840	(47)
Forward Full Tree	4 224	(6)	874	(2)	0	(0)	0	(0)	4 224	(6)	874	(2)
Manual Slash (bush)	35 727	(52)	24 036	(47)	4 026	(100)	378	(100)	39 753	(55)	24 414	(48)
Manual Slash (road)	8 134	(12)	15 493	(31)	0	(0)	0	(0)	8 134	(11)	15 493	(30)
Mech. Slash (bush)	11 623	(17)	1 823	(4)	0	(0)	0	(0)	11 623	(16)	1 823	(4)
Mech. Slash (road)	12 618	(19)	9 221	(18)	0	(0)	0	(0)	12 618	(18)	9 221	(18)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	68 102	(100)	50 573	(100)	4 026	(100)	378	(100)	72 128	(100)	60 951	(100)

Table 8. Harvesting Systems - Queens-Charlotte License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	417 735	(63)	46 343	(69)	98 644	(100)	31 051	(100)	516 379	(68)	77 394	(79)
Mechanical Fell	244 887	(37)	20 554	(31)	0	(0)	0	(0)	244 887	(32)	20 554	(21)
Manual Delimb (bush)	7 745	(1)	30 381	(45)	79 073	(80)	31 026	(100)	86 818	(11)	61 407	(63)
Mech. Delimb (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Delimb (road)	654 877	(99)	36 516	(55)	19 571	(20)	25	(0)	674 448	(89)	36 541	(37)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	2 229	(0)	5 399	(8)	26 348	(27)	13 003	(42)	28 577	(4)	18 402	(19)
Forward Tree Length	5 516	(1)	24 982	(37)	52 725	(53)	18 023	(58)	58 241	(8)	43 005	(44)
Forward Full Tree	654 877	(99)	36 516	(55)	19 571	(20)	25	(0)	674 448	(88)	36 541	(37)
Manual Slash (bush)	2 229	(0)	5 399	(8)	26 348	(27)	13 003	(42)	28 577	(4)	18 402	(19)
Manual Slash (road)	1 167	(0)	4 587	(7)	52 725	(53)	1 965	(6)	53 892	(7)	6 552	(7)
Mech. Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	659 226	(100)	56 911	(85)	19 571	(20)	16 083	(52)	678 797	(89)	72 994	(74)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	662 622	(100)	66 897	(100)	98 644	(100)	31 051	(100)	761 266	(100)	97 948	(100)

Table 9. Harvesting Systems - Fundy License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	176 310	(58)	31 192	(72)	135 236	(80)	26 083	(86)	311 546	(66)	57 275	(78)
Mechanical Fell	125 672	(42)	12 156	(28)	34 470	(20)	4 169	(14)	160 142	(34)	16 325	(22)
Manual Delimb (bush)	65 634	(22)	22 417	(52)	103 236	(61)	22 450	(74)	168 870	(36)	44 867	(61)
Mech. Delimb (bush)	12 478	(4)	1 538	(3)	0	(0)	0	(0)	12 478	(3)	1 538	(2)
Mech. Delimb (road)	223 870	(74)	19 393	(45)	66 470	(39)	7 802	(26)	290 340	(61)	27 195	(37)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	65 969	(22)	15 520	(36)	103 236	(61)	15 542	(51)	169 205	(36)	31 062	(42)
Forward Tree Length	12 143	(4)	8 435	(19)	0	(0)	6 908	(23)	12 143	(3)	15 343	(21)
Forward Full Tree	223 870	(74)	19 393	(45)	66 470	(39)	7 802	(26)	290 340	(61)	27 195	(37)
Manual Slash (bush)	64 516	(21)	15 481	(36)	103 236	(61)	15 542	(51)	167 752	(36)	31 023	(42)
Manual Slash (road)	291	(0)	0	(0)	0	(0)	0	(0)	291	(0)	0	(0)
Mech. Slash (bush)	1 453	(1)	39	(0)	0	(0)	0	(0)	1 453	(0)	39	(0)
Mech. Slash (road)	235 722	(78)	27 828	(64)	66 470	(39)	14 710	(49)	302 192	(64)	42 538	(58)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	301 982	(100)	43 348	(100)	169 706	(100)	30 252	(100)	471 688	(100)	73 600	(100)

Table 10. Harvesting Systems - York License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	226 716	(100)	124 573	(100)	817	(100)	711	(100)	227 533	(100)	125 284	(100)
Mechanical Fell	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Delimb (bush)	226 716	(100)	124 573	(100)	817	(100)	711	(100)	227 533	(100)	125 284	(100)
Mech. Delimb (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Tree Length	226 716	(100)	124 573	(100)	817	(100)	711	(100)	227 533	(100)	125 284	(100)
Forward Full Tree	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (road)	9 322	(4)	6 862	(6)	817	(100)	711	(100)	10 139	(4)	7 573	(6)
Mech. Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	217 394	(96)	117 711	(94)	0	(0)	0	(0)	217 394	(96)	117 711	(94)
Mech. Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	226 716	(100)	124 573	(100)	817	(100)	711	(100)	227 533	(100)	125 284	(100)

Table 11. Harvesting Systems - Carleton License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	68 535	(36)	31 937	(54)	32 620	(100)	3 433	(100)	101 155	(46)	35 370	(57)
Mechanical Fell	117 320	(63)	27 220	(46)	0	(0)	0	(0)	117 320	(54)	27 220	(43)
Manual Delimb (bush)	26 746	(14)	13 460	(23)	32 620	(100)	3 433	(100)	59 366	(27)	16 893	(27)
Mech. Delimb (bush)	18 049	(10)	12 036	(20)	0	(0)	0	(0)	18 049	(8)	12 036	(19)
Mech. Delimb (road)	141 060	(76)	33 661	(57)	0	(0)	0	(0)	141 060	(65)	33 661	(54)
Manual Delimb (road)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Short Wood	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Forward Tree Length	44 795	(24)	25 496	(43)	32 620	(100)	3 433	(100)	77 415	(35)	28 929	(46)
Forward Full Tree	141 060	(76)	33 661	(57)	0	(0)	0	(0)	141 060	(65)	33 661	(54)
Manual Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Manual Slash (road)	26 746	(14)	13 460	(23)	32 620	(100)	3 433	(100)	59 366	(27)	16 893	(27)
Mech. Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	47 553	(26)	24 474	(41)	0	(0)	0	(0)	47 553	(22)	24 474	(39)
Mech. Slash (mill)	111 556	(60)	21 223	(36)	0	(0)	0	(0)	111 556	(51)	21 223	(34)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	185 855	(100)	59 157	(100)	32 620	(100)	3 433	(100)	218 475	(100)	62 590	(100)

Table 12. Harvesting Systems - Restigouche-Tobique License by volume and percent.

FUNCTION	LICENSEE				SUB-LICENSEE				LICENSE			
	SW		HW		SW		HW		SW		HW	
	m³	%	m³	%	m³	%	m³	%	m³	%	m³	%
Manual Fell	419 491	(85)	10 497	(96)	209 741	(66)	84 707	(98)	629 232	(78)	95 204	(98)
Mechanical Fell	74 499	(15)	429	(4)	107 964	(34)	1 355	(2)	182 463	(22)	1 784	(2)
Manual Delimb (bush)	2 185	(0)	2 269	(21)	37 111	(12)	51 480	(60)	39 296	(5)	53 749	(55)
Mech. Delimb (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Delimb (road)	491 805	(100)	5 837	(53)	280 594	(88)	21 189	(25)	772 399	(95)	27 026	(28)
Manual Delimb (road)	0	(0)	2 820	(26)	0	(0)	13 393	(15)	0	(0)	16 213	(17)
Forward Short Wood	0	(0)	0	(0)	2 075	(1)	7 679	(9)	2 075	(0)	7 679	(8)
Forward Tree Length	2 185	(0)	2 269	(21)	35 036	(11)	43 801	(51)	37 221	(5)	46 070	(47)
Forward Full Tree	491 805	(100)	8 657	(79)	280 594	(88)	34 582	(40)	772 399	(95)	43 239	(45)
Manual Slash (bush)	0	(0)	0	(0)	2 075	(1)	7 679	(9)	2 075	(0)	7 679	(8)
Manual Slash (road)	40	(0)	4 953	(45)	17 762	(5)	37 111	(43)	17 802	(2)	42 064	(43)
Mech. Slash (bush)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Mech. Slash (road)	125 022	(25)	1 497	(14)	287 932	(91)	40 765	(47)	412 954	(51)	42 262	(44)
Mech. Slash (mill)	368 928	(75)	4 476	(41)	9 936	(3)	507	(1)	378 864	(47)	4 983	(5)
Manual Slash (mill)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Full Tree Chip	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	493 990	(100)	10 926	(100)	317 705	(100)	86 062	(100)	811 695	(100)	96 988	(100)

HARVESTING FUNCTION COMPARISON

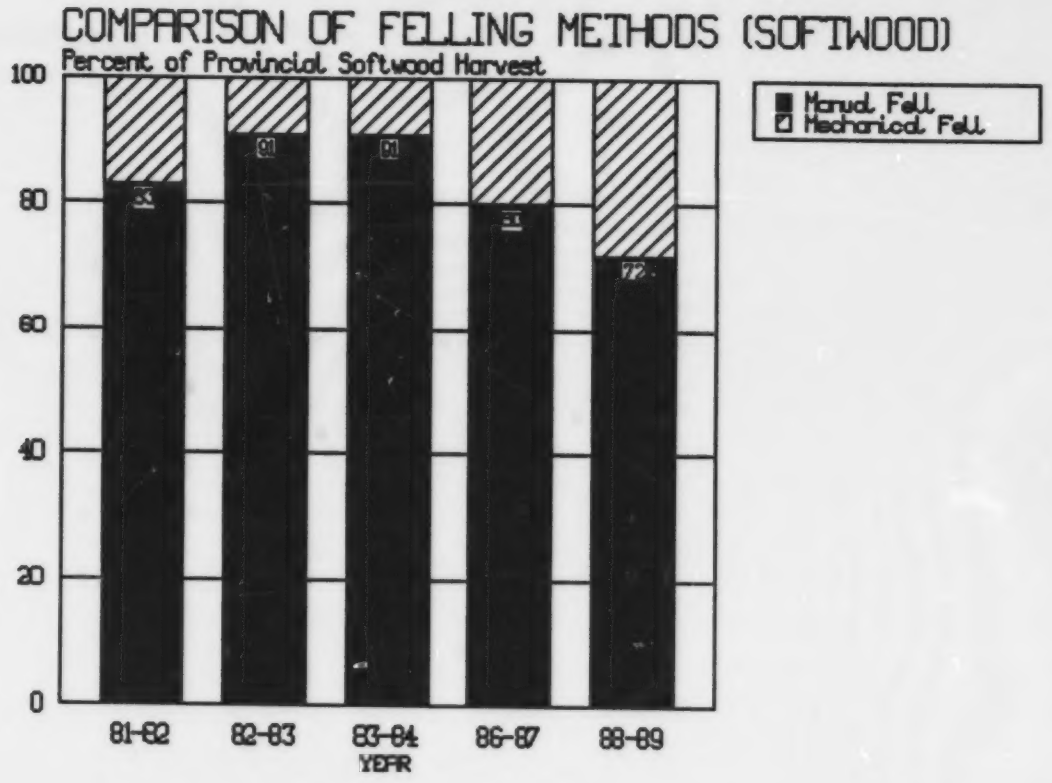
A comparison of harvesting functions on a provincial basis for the 1988-89 harvesting system survey can be made with the 1981-84, 1986-87 surveys by observing:

Figure 1. Comparison of felling methods

Figure 2. Comparison of delimbing methods

Figure 3. Comparison of forwarding methods

Figure 4. Comparison of slashing methods



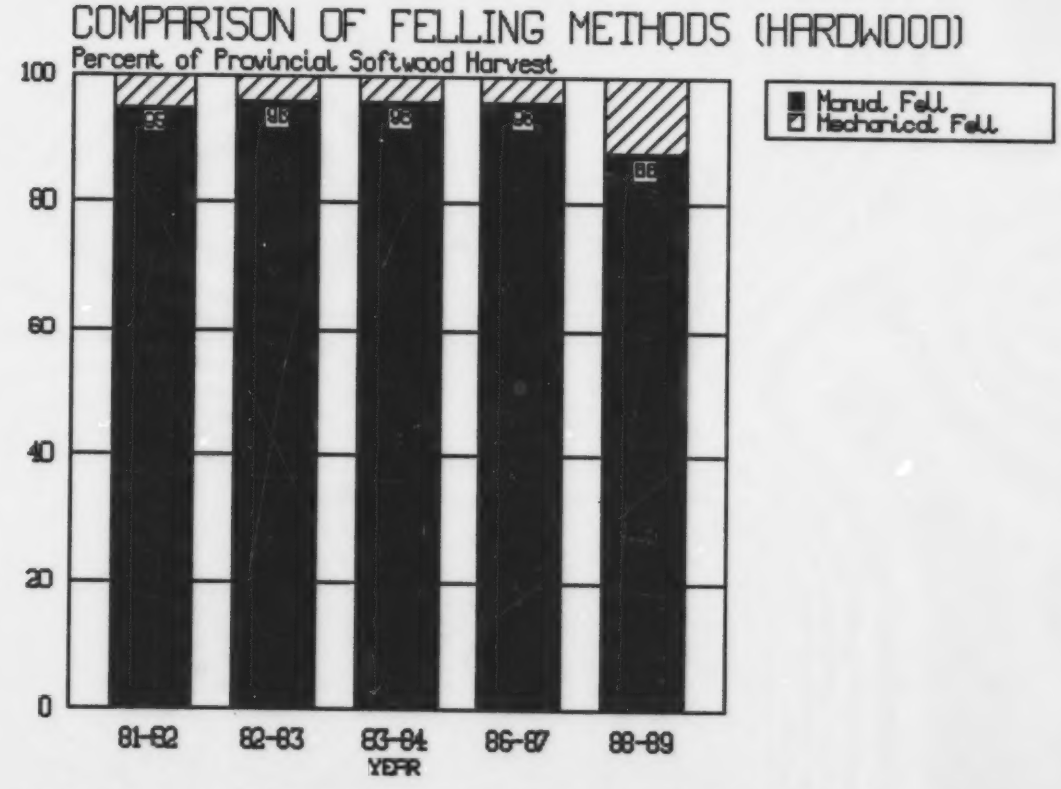


Figure 1. Comparison of felling methods

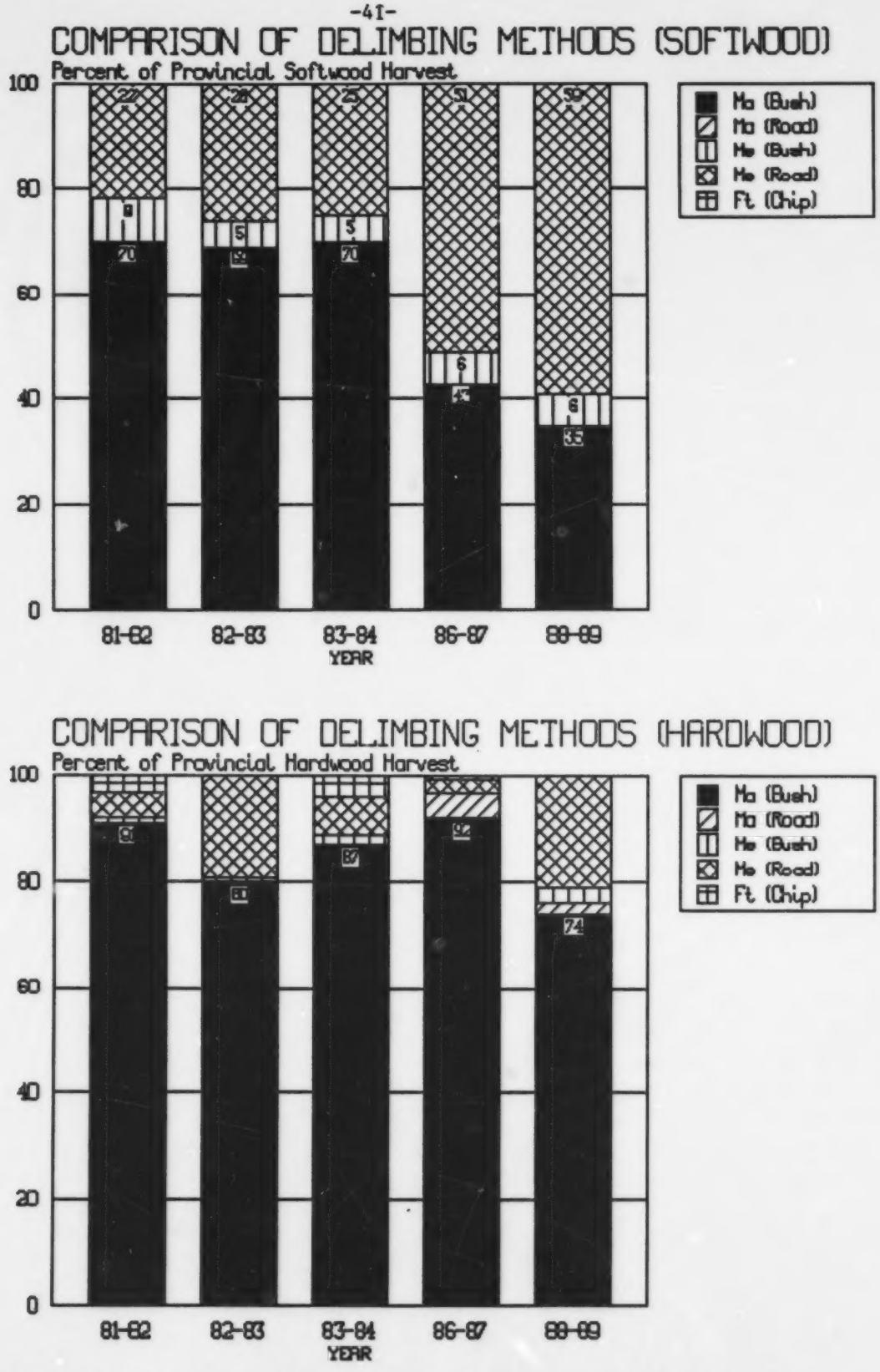


Figure 2. Comparison of delimbing methods

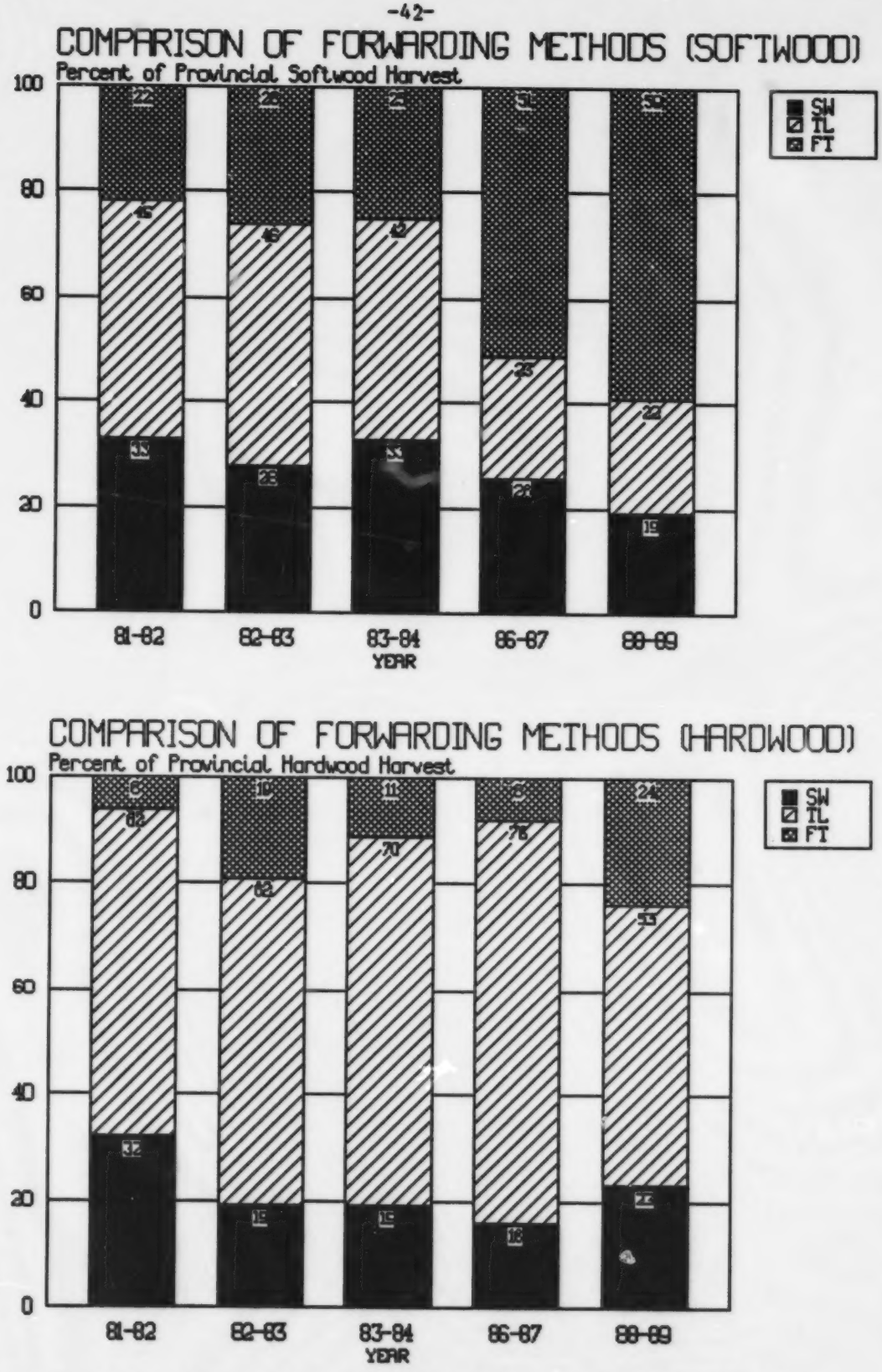
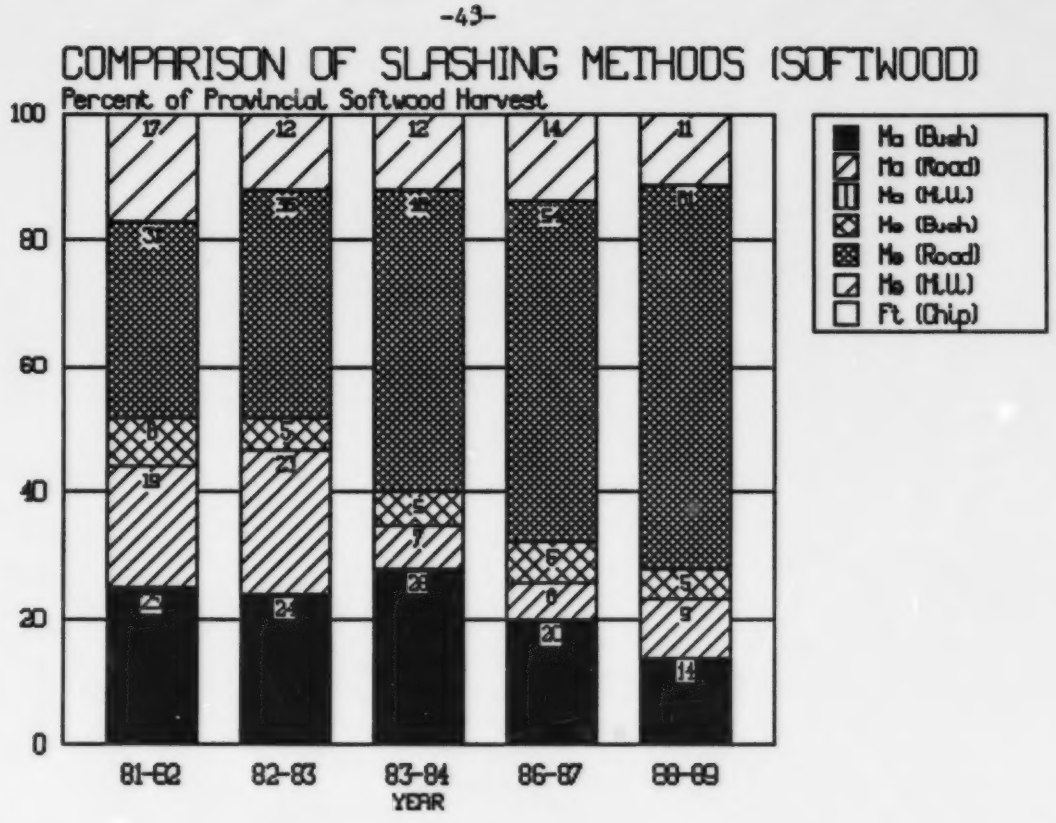


Figure 3. Comparison of forwarding methods



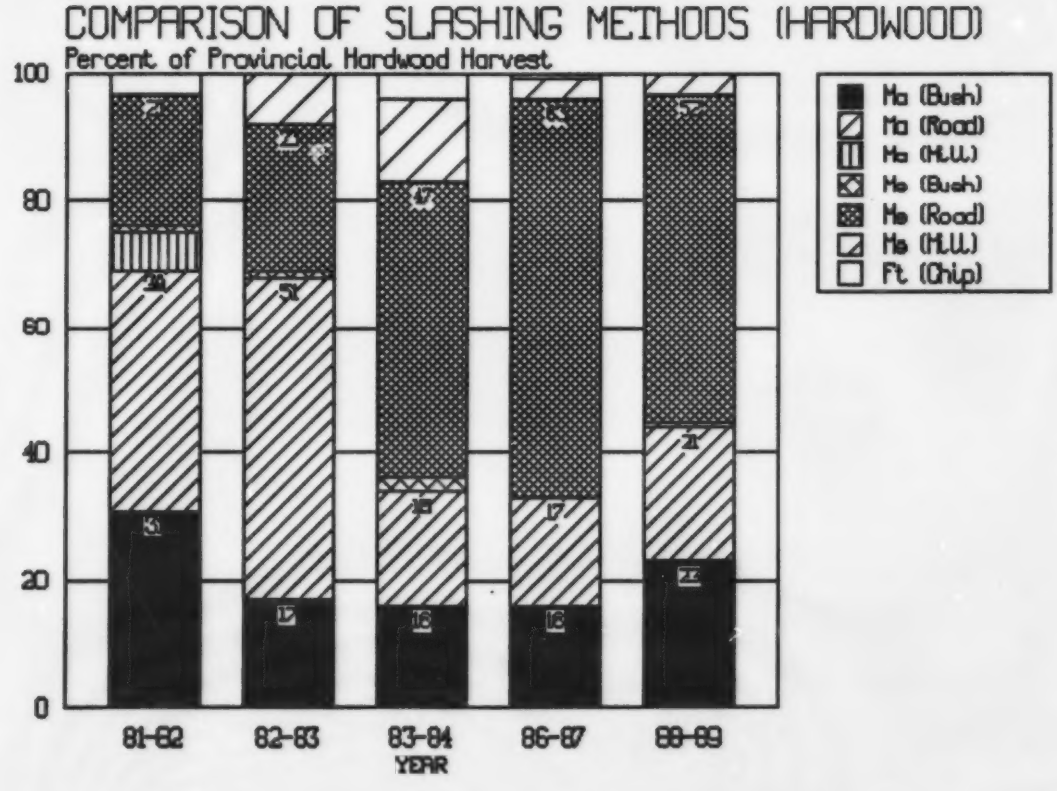


Figure 4. Comparison of slashing methods

COMMENTS

The 1988-89 Harvesting System Survey compares the volumes of wood harvested by the various harvesting phases (felling, delimbing, forwarding, slashing) for Provincial Crown Land from 1981-84, 86-87, 88-89; and visually displays the percentage of wood harvested on stacked bar charts. However, the majority of the report deals with the 1988-89 harvesting system. As such the comments presented will compare the 88-89 harvesting system survey to that of the previous one (86-87) with specific trends being noted for each License.

Some significant changes have occurred since the 1986-87 operating season. To better comprehend these changes, comparisons will be broken down by softwood and hardwood harvests.

Softwood:

Twenty-eight percent of the softwood harvested was mechanically felled. A greater percentage of softwood was harvested by the full tree harvesting system, accordingly there was an eight percent increase in mechanical roadside delimbing at the expense of manual delimbing at the stump. Consequently, this eight percent increase in full tree operations continued through the forwarding phase with less softwood volume being forwarded short wood. There were some changes in the slashing phase with more softwood being slashed at roadside by mechanical as well as by manual operations. There was less softwood mechanically slashed at the mill and manually slashed at the stump.

Hardwood

Twelve percent of the hardwood harvested was mechanically felled. A greater percentage of hardwood was harvested by the full tree system as reflected by the fact that twenty-two percent of the hardwood harvested was mechanically delimbed at roadside. Although the trend was to more full tree operations, over fifty percent of the hardwood harvested was forwarded in tree length form. There was a slight decrease in the percent of hardwood mechanically slashed at roadside, consequently more hardwood was manually slashed at the stump and at roadside. There was no hardwood full tree chipping operations on Crown Land in 1988-89.

Overall

The 1988-89 Harvesting System Survey indicated the continuing increase in the use of the full tree harvesting system in softwood operations (59% of all softwood harvested is being forwarded full tree). Consequently a greater percentage of the softwood harvest was mechanically delimbed and slashed at roadside.

Although there were moderate increases in the percentage of hardwood harvested by shortwood and full tree systems, the primary system still being used was the tree length system (down from 76% in 1986-87, to 53% in 1988-89). Consequently, a greater percentage of hardwood was manually delimbed at the stump. There was a slight decrease in the amount of hardwood being mechanically slashed at roadside, although fifty-two percent of the hardwood harvest was done by this means.

The specific trends on individual Licenses were as follows:

Upsalquitch

- Slight decrease in the percentage of softwood harvested by the Koehring Shortwood Harvesters.
- Slight increase in the percentage of softwood harvested by the conventional tree length system with manual roadside processing.
- Significant increase in the percentage of hardwood harvested by the conventional tree length system with manual roadside slashing at the expense of the full tree system with mechanical roadside processing.

Nepisiguit

- The full tree harvesting system with mechanical processing at roadside was introduced both in softwood and hardwood operations.
- Slight decrease in the percentage of softwood harvested by the trail cut/porter system.
- The conventional tree length harvesting system with mechanical roadside slashing was the primary system used for both softwood and hardwood.

Lower Miramichi

- Slight increase in the percentage of softwood manually slashed at roadside.
- Approximately 50 percent of the hardwood was harvested by the full tree system with mechanical processing at roadside.
- The hardwood harvested by the tree length system was manually slashed at roadside.
- The horse was still being used on Sub-Licensee operations.

Upper Miramichi

- Significant increase in the percentage of softwood being mechanically felled (62 percent in 88-89).
- Greater percentage of softwood being mechanically processed either at the stump or at roadside.
- Significant reduction in the percentage of softwood and hardwood volumes harvested by the trail cut/porter system.
- Greater percentage of hardwood being harvested with the Koehring Feller Forwarders.
- Some Sub-Licensees were using mechanical felling and processing systems.

Kent	- A mechanical short wood and a mechanical full tree system were being used on Licensee operations; consequently a greater percentage of softwood and a small percentage of hardwood was mechanically felled and mechanically processed. - Great reduction in conventional tree length operations.
Queens-Charlotte	- The full tree system was used to harvest 99 percent of the softwood volume harvested by the Licensee. - All softwood was mechanically slashed at roadside; there was no mechanical slashing done at the mill. - Greater percentage of hardwood was mechanically felled. - Licensee was harvesting approximately 55 percent of the hardwood by the full tree system instead of the tree length system. - Increase in the percentage of hardwood mechanically delimbed at roadside and an increase in the percentage of hardwood manually slashed. - More Sub-Licensees were opting to the full tree harvesting system for softwood.
Fundy	- Slight increase in the percentage of softwood volume manually felled. - Slight increase in the percentage of softwood harvested by the full tree system; consequently corresponding increases in mechanical roadside delimbing and slashing. - Significant increase in the percentage of hardwood harvested by the full tree system at the expense of the tree length system. - Increased volume of hardwood mechanically delimbed at roadside instead of manually in the bush. - Only slight increase in hardwood mechanically slashed at road. - No slashing was done at the mill.
York	- All softwood and hardwood was harvested by the conventional tree length system. - Approximately 96 percent of the softwood volume was mechanically slashed at roadside. - Slight increase in the percentage of hardwood mechanically slashed at roadside.
Carleton	- The Licensee used a variety of systems to harvest both softwood and hardwood since the 86-87 operating year. - The tree length system was re-introduced by the Licensee to harvest 24 percent of the softwood volume at the expense of the full tree system.

York (Cont'd)	- Significant increase in the percent of softwood and hardwood mechanically felled. - Significant reduction in the amount of softwood mechanically delimbed at roadside; more delimbing at the stump, more slashing at the mill. - Significant increase in the percentage of hardwood harvested by the full tree system. - Increased percentage of hardwood mechanically delimbed, both at the stump and at roadside. - Increased percentage of hardwood mechanically slashed at the mill. - Sub-Licensees used the conventional tree length the system with manual roadside slashing.
Restigouche-Tobique	- Slight increase in the percentage of softwood mechanically felled. - Approximately 95 percent of all softwood was harvested by the full tree system with mechanical roadside delimbing. - Significant increase in the percentage of softwood mechanically slashed at roadside; although 75 percent was mechanically slashed at the mill. - No hardwood full tree chipping. - Slight increase in the percent of hardwood mechanically felled. - Increased percent of hardwood harvested by the full tree system, consequently more delimbing (both mechanical and manual) at roadside. - Majority of Licensee hardwood was slashed at the mill.

GLOSSARY

DELIMB - phase of harvesting during which the limbs, branches and top of a tree are removed.

FELL - phase of harvesting during which a tree is severed from its stump.

FELLER BUNCHER - machine used to fell trees and place them in a position near the stump, ready for forwarding to roadside.

FELLER FORWARDER - machine used to fell trees and forward them in full tree form to roadside for processing.

FELLER PROCESSOR - machine used to fell, delimb and slash a tree at the stump, and then pile the wood at the stump for forwarding to roadside.

FORWARD - phase of harvesting during which trees are moved from stump to roadside.

FULL TREE - refers to a harvesting system in which the tree is forwarded, complete with crown, for processing at roadside.

FULL TREE CHIP - referes to a harvesting system in which full trees are chipped at roadside.

HARVESTER - machine used to fell, delimb and slash trees at the stump then forward the wood in product form to roadside.

LICENSEE - refers to the holder of a Crown timber license.

PROCESSOR - machine used to delimb and slash a tree at the stump, and then pile the wood at the stump for forwarding to roadside.

SHORT WOOD - refers to a harvesting system in which the tree is forwarded in product form to roadside.

SKID - a form of forwarding where the tree in full tree or tree length form is grappled or chocked at the buttends, raised from the ground and dragged to roadside.

SLASH - phase of harvesting during which the delimbed stem of a tree is cut into primary forest products.

SUB-LICENSEE - refers to the holder of a Crown timber sub-license.

GLOSSARY
(Cont'd)

TRAIL CUT - a manual short wood harvesting operation where wood is brought to roadside by a forwarder.

TREE LENGTH - refers to a harvesting system in which the tree stem without the crown is forwarded to roadside for processing into primary forest products.